

# CAN YOU FEEL THE "TENSION"? EVALUATING THE TRANSLATABILITY OF COMPLEX TERMINOLOGY IN PROS



Rebecca Israel, Tim Poepsel, Payton Ramsey, Oliver Delgaram-Nejad, Allyson Nolde, Rachael Browning

## OBJECTIVE:

Collecting high-quality data via patient reported outcome assessments (PROs) relies on using direct and uncomplicated terminology. This is especially true for linguistic validation (LV) of PROs intended for global administration.

Here we review patient and linguist interpretations of the term "tension", which can describe both physical (e.g., stress or strain) and psychological (e.g., anxiety) experiences, within a quality-of-life measure for Rheumatoid Arthritis. Because 'tension' can carry either of the above meanings, there is potential for ambiguity, which can be exacerbated by the frequent lack of context or elaboration of key terms that PROs provide to patients. Furthermore, in the context of global clinical trials where translation of PROs is required, these ambiguities can be amplified, and at worst contribute to differential item functioning if the translations are not conceptually equivalent to the source or each other.

This research adds to a growing body of work examining potentially ambiguous and difficult-to-translate critical terms and concepts that recur in PROs (such as 'disease activity', 'quality of life', or 'depressed'), aiming to provide guidance for improving the precision and translatability of PRO terminology, and ultimately avoid the issues with data validity those can cause.

## METHODS:

We reviewed linguist and patient feedback on "tension" across 19 PRO translations, involving 13 languages for 16 countries (See Figure 2 and Tables 3 and 4). Respondents (n=95) were 18-85 years old, with 6-23 (average = 12.23) years of education (See Table 1).

Table 1:

| Probes Questions  |
|---|
| (1) Probe 1: What is your definition of "tension" in the question above?                                  |
| (2) Probe 2: Does the translation of "tension" refer to physical tension, psychological tension, or both? |

## RESULTS:

47% of respondents said "tension" could refer to both physical and psychological experiences. 21% thought "tension" was solely physical; 32% solely psychological (See Figures 1 and 2). Final interpretation was based on patients' personal experience with Rheumatoid Arthritis.

Figure 1: Is tension a physical or psychological experience?

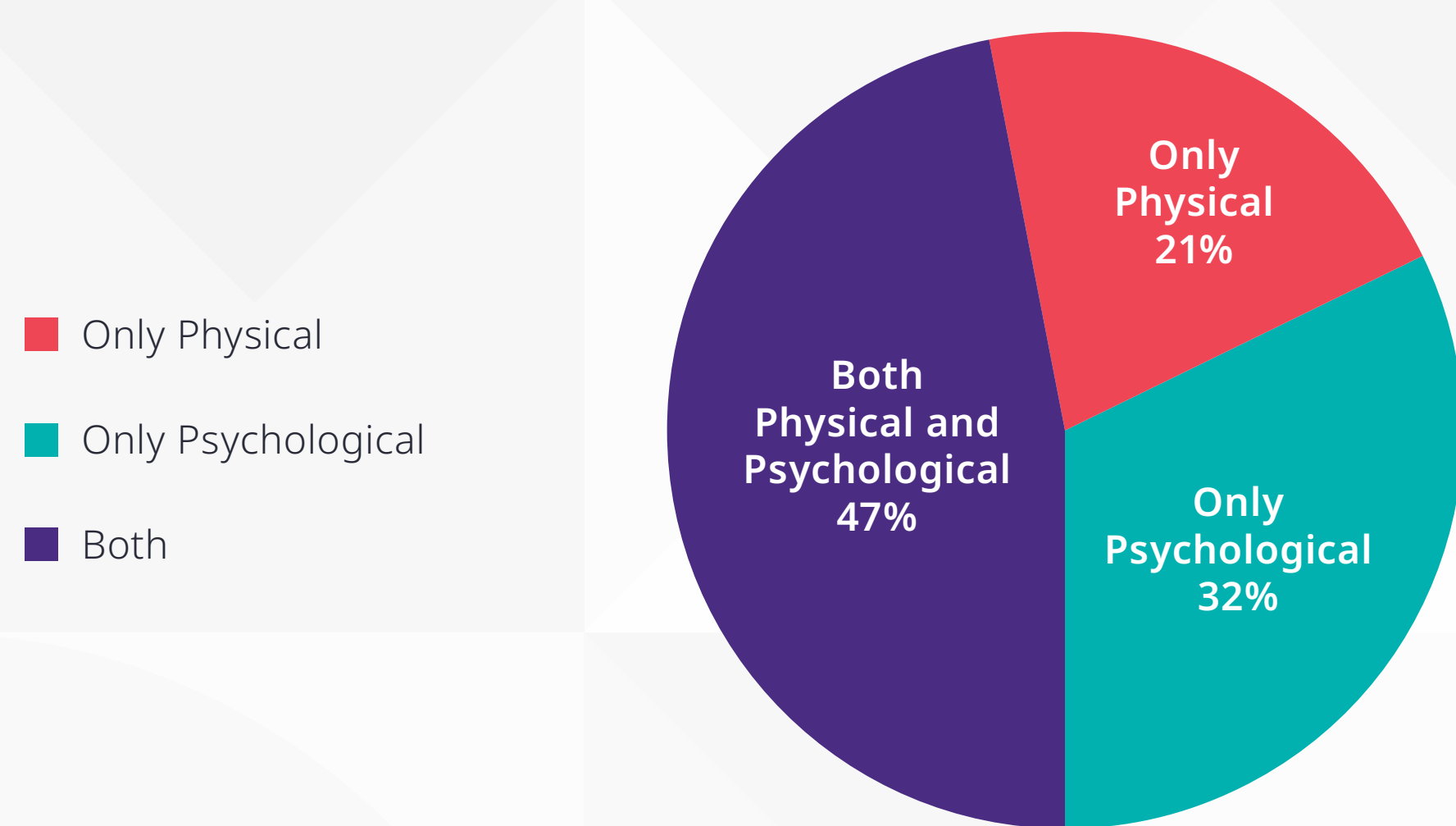
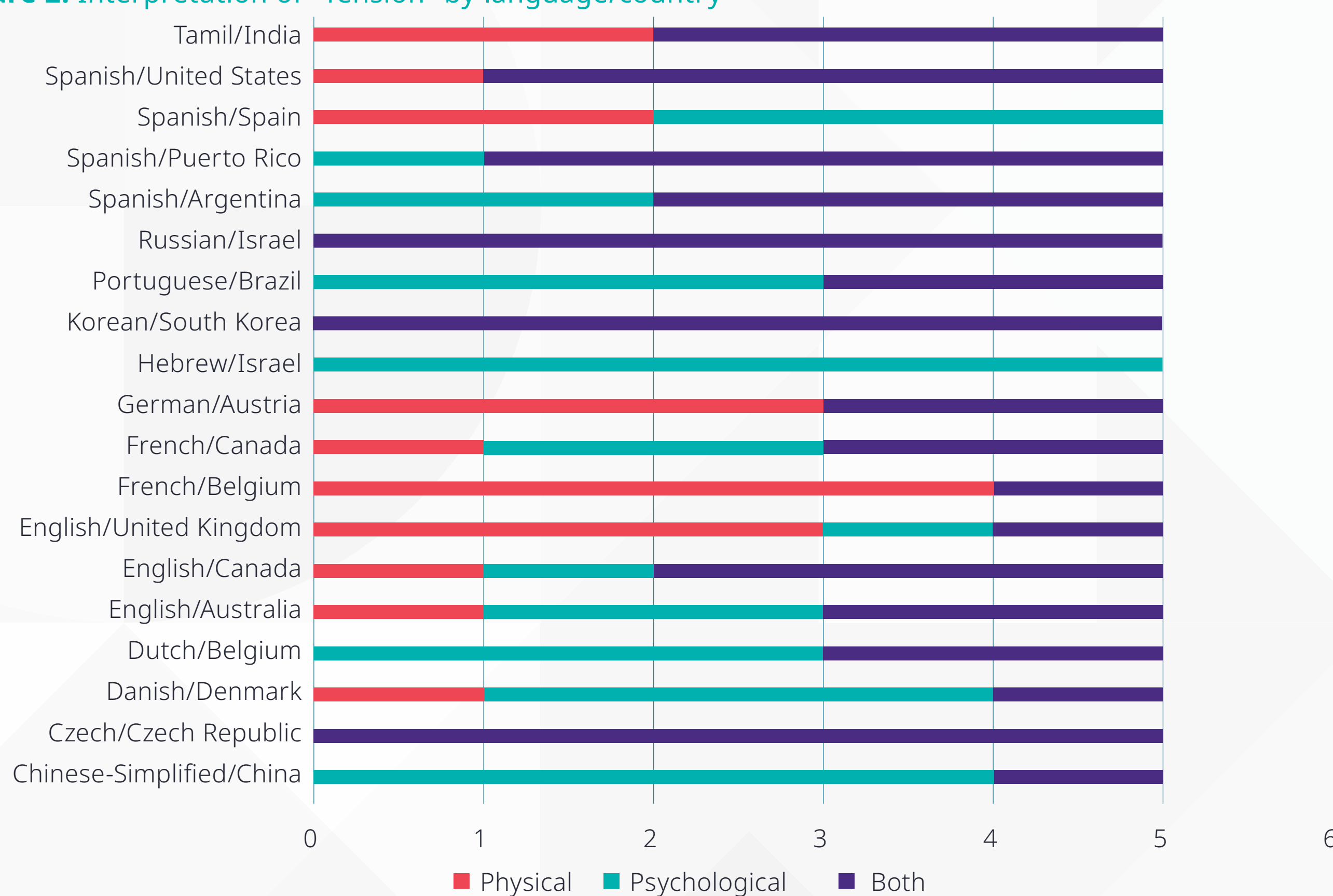


Figure 2: Interpretation of "Tension" by language/country



## References:

- Brandt, B., Yohe Moore, E., Poepsel, T., McKown, S. (2017). "Variations in the Interpretation of Fatigue Across Translations of the Neuro-QoL Item Bank - Fatigue - Version 1.0". Poster presented at PROMIS IN ACTION: Clinical and Research Implementation and Implications. Philadelphia, PA, USA.
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- Gawlicki, M., Brandt, B., McKown, S., Talbert, M. (2012). "Application of the bother concept across cultures: a follow-up review of research and presentation of alternatives." Poster presented at the 17th Annual International Meeting of ISPOR. Washington D.C.
- Tim Poepsel, PhD; Allyson Nolde, MPP; Chryso Hadjimetriou, PhD; Rebecca Israel, MS; Rachael Browning, BA; Shawn McKown, MA (2023). "Global Problems in PGI Measures: The Patients' Perspective on and Solutions to Poor PRO Word Choice." Poster presented at the Annual International Meeting of ISPOR. Boston, MA, USA.
- Rebecca Israel, MS; Tim Poepsel, PhD; Allyson Nolde, MPP; Payton Ramsey, MPH; Oliver Delgaram-Nejad, PhD; Chryso Hadjimetriou, PhD (2024). "What is "Recovery"? Patient-Centered Recommendations for Complex Terminology in PROs." Poster presented at the Annual International Meeting of ISOQOL. Cologne, Germany, USA.

Table 2:

| Examples Codes | Alternate terms offered by subjects |            |
|----------------|-------------------------------------|------------|
| Psychological  | anxious                             | unrelaxed  |
|                | nervous                             | fidgety    |
|                | agitation                           | edgy       |
|                | worry                               |            |
| Physical       | strain                              | discomfort |
|                | pain                                | exertion   |
|                | stiff                               | ache       |
|                | rigidity                            | tightness  |

63% (10/16) of languages could translate "tension" with conceptual ambiguity as in the source; the rest were linguistically unable. That is, some languages in the sample had specific and different words for the physical and psychological interpretations of "tension" (e.g. in German for Austria, "Verspannungen" was offered as a translation for physical tension and "Angespantheit" as a translation for psychological tension), while other languages had one word that could convey both meanings as in English.

17/19 (89%) linguists favored a source wording change to improve translatability of "tension". Suggested changes to improve wording included adding adjectives, such as "physical / bodily tension", "emotional tension", and "tension from inflammation".

Table 3: Examples of Harmonization of 'Tension'

| Examples Codes     | Harmonized Translation  | Back Translation   | Comments   |
|--------------------|---|--|--|
| German-Austria     | Wie würden Sie Ihre Lebensqualität in Hinblick auf den Grad Ihrer Verspannungen bewerten? | How would you assess your quality of life in terms of the degree of your tenseness?  | "Verspannungen" was offered as a translation for physical tension and "Angespantheit" as a translation for psychological tension |
| Hebrew-Israel      | כיצד היית מדרג/ת את איכות החיים שלך באשר לרמת ה המתח שלך?                                 | How would you rate your quality of life regarding your stress level?                 | Translated entirely as psychological tension   |
| Russian-Israel     | Учитывая свой уровень напряжения, как бы вы оценили качество своей жизни?                 | When considering your level of stress, how would you rate your quality of life?      | "жения" can be translated into English as „Stress“, „Tension“ or „strain“, thus validating BT                                    |
| Korean-South Korea | 귀하의 긴장 수준을 고려했을 때, 귀하의 삶의 질을 어떻게 평가하시겠습니까?  | When considering your level of tension, how would you evaluate your quality of life? | The back-translator seems to have translated the word "긴장(tension)" as "stress"  |

Table 4: Cognitive Debriefing Feedback on 'Tension'

| Language/Country     | Comment from Subject   | Thematic Category                       |
|----------------------|--|---|
| German-Austria       | "This is something I had when I used to go to work a few years ago, e.g. a stiff neck, tense muscles in the neck. But I don't see a relation to rheumatoid arthritis." Female, 56-65 years old, 19 years of education  | Physical tension                        |
| Danish-Denmark       | Says his first thought was that it refers to when the whole body is tensioned up so that it gets stiff, however, it must be "stress" from being worried and annoyed be all the things you want to do or ought to do but cannot do because of that damned arthritis. Male, 36-45 years old, 15 years of education   | Both physical and psychological tension |
| English-Australia    | "In this particular question, I would interpret that as mental stress only. If they wanted to talk about physical tension, they should add 'physical'." Male, 46-55 years old, 16 years of education   | Psychological tension                   |
| English-Australia    | "They can mean both. I would need clarification. I would have to ask, are they talking about muscular tension? They should be careful though because this could be also something that implies the patient is having symptoms because 'it's in their head, or due to stress'. If they only ask about psychological tension - rheumatoid arthritis is more than that." Female, 36-45 years old, 17 years of education | Both physical and psychological tension |
| English-Australia    | "Anxiety or the results of anxiety. The results would be 'tension', so how they are asking how that impacts your arthritis." Female, 56-65 years old, 14 years of education  | Psychological tension                   |
| French-Belgium       | "I don't understand, it can be blood pressure, it can be how stiff you are, it can be anything." Female, 76-85 years old, 10 years of education  | Physical tension                        |
| Czech-Czech Republic | "When I am tense psychologically, I am automatically tense physically" Female, 66-75 years old, 9 years of education   | Both physical and psychological tension |
| Dutch-Belgium        | "Both, yet with an emphasis on the psychological aspect, which gives a ratio of 75/25%. The psychological element determines the quality of my life. Physical stress, for example, is pain." Male, 56-65 years old, 16 years of education  | Both physical and psychological tension |

## CONCLUSIONS

- Results showed strong competition between physical and psychological interpretations, leading to differential translatability across languages
- Increased chance of unreliable data collection, as interpretations may vary from language to language. The possibility of differential item functioning without guidance from the developer or copyright holder about the intended meaning of "tension", or careful translation to reflect the source ambiguity in its absence, is very high. This is true for many of the difficult-to-understand and translate terms we have covered to date, such as "depressed" and "bother".
- Linguists and subjects proposed using unambiguous and clearer terms, either by changing the source text, adding descriptors to "tension" such as "physical tension", or providing the intended definition of the term in the instrument itself.